

Key

1. Write the equation of a circle with radius $\sqrt{30}$ and center is the origin.

1. $x^2 + y^2 = 30$

2. Write the equation of a circle with Center $(3, -2)$ and passes through point $(7, -2)$

2. $(x-3)^2 + (y+2)^2 = 16$

$$(7-3)^2 + (-2+2)^2 = r^2$$

$$16 + 0 = r^2$$

$$16 = r^2$$

3. Write the equation of the circle in standard form and give the center
And radius. $x^2 + y^2 - 6x - 8y + 24 = 0$

3. $(x-3)^2 + (y-4)^2 = 1$

$$x^2 - 6x + y^2 - 8y = -24$$

$$x^2 - 6x + \left(-\frac{6}{2}\right)^2 + y^2 - 8y + \left(-\frac{8}{2}\right)^2 = -24 + \left(-\frac{6}{2}\right)^2 + \left(-\frac{8}{2}\right)^2$$

$$(x-3)^2 + (y-4)^2 = -24 + 9 + 16$$

c. $(3, 4)$ r. 1

4. Write the equation of the circle in standard form and give the center
And radius. $x^2 + y^2 - 12x - 12y + 36 = 0$

3. $(x-6)^2 + (y-6)^2 = 36$

$$x^2 - 12x + y^2 - 12y = -36$$

$$x^2 - 12x + \left(-\frac{12}{2}\right)^2 + y^2 - 12y + \left(-\frac{12}{2}\right)^2 = -36 + \left(-\frac{12}{2}\right)^2 + \left(-\frac{12}{2}\right)^2$$

$$(x-6)^2 + (y-6)^2 = -36 + 36 + 36$$

c. $(6, 6)$ r. 6

5. Tell whether the parabola opens *up, down, left, or right*.

a. $y = -3x^2$

DOWN

b. $2y^2 = -6x$

LEFT

c. $x^2 = 16y$

UP

d. $-5x = -y^2$

RIGHT6. Find the vertex and value of C in the equation of the parabola. $(x-4)^2 = \frac{1}{2}(y+2)$

$$4c = \frac{1}{2}$$

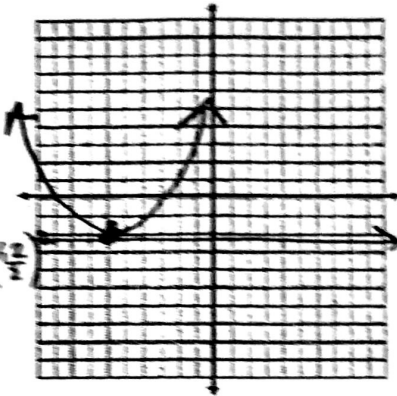
$$c = \frac{1}{8}$$

6. v. $(4, -2)$
c. $\frac{1}{8}$

7. Find the Vertex, Focus and Directrix on $y = 2x^2 + 24x + 70$

$V = (-6, -2)$
 $F = (-6, -1\frac{7}{8})$
 $D = y = -2\frac{1}{8}$

$y - 70 = 2x^2 + 24x$
 $2x^2 + 24x = y - 70$
 $2(x^2 + 12x + (\frac{12}{2})^2) =$
 $y - 70 + 2(\frac{36}{2})$



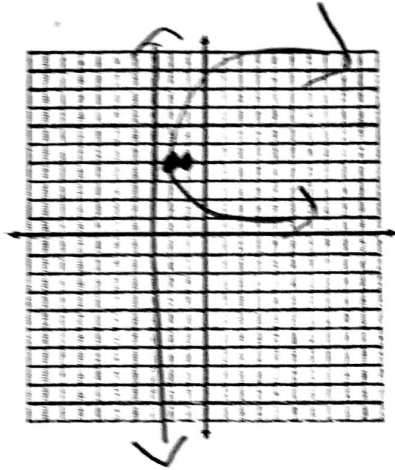
$4c = \frac{1}{2}$
 $c = \frac{1}{8}$

$2(x+6)^2 = y - 70 + 72$
 $2(x+6)^2 = y + 2$
 $(x+6)^2 = \frac{1}{2}(y+2)$

8. Graph the equation. Find each. $(y-4)^2 = 3(x+2)$

$V = (-2, 4)$
 $F = (-1\frac{1}{4}, 4)$
 $D = x = -2\frac{3}{4}$

$4c = 3$
 $c = \frac{3}{4}$



9. Write the equation of the parabola in standard form.

$y^2 - 2x - 20y + 94 = 0$

$y^2 - 20y = 2x - 94$

$y^2 - 20y + (\frac{-20}{2})^2 = 2x - 94 + (\frac{-20}{2})^2$

$(y-10)^2 = 2x - 94 + 100$

$(y-10)^2 = 2x + 6 \rightarrow (y-10)^2 = 2(x+3)$

9. $(y-10)^2 = 2(x+3)$

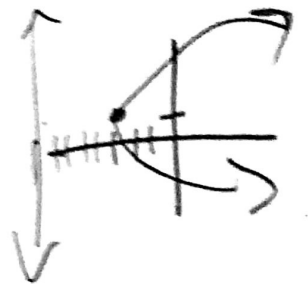
10. Find the equation of the parabola with the given characteristics.

a. Vertex = (3, -2) Focus = (3, -4)

b. Vertex = (-3, 1) Directrix = x = -8

$c = -2$

$c = 5$



a. $(x-3)^2 = -8(y+2)$

b. $(y-1)^2 = 20(x+3)$